

CLAIMS

What is claimed is:

1 1. An apparatus, comprising:
2 first and second optical paths, an optical beam to be directed through
3 the first optical path;
4 an evanescent coupler including the first and second optical paths,
5 the evanescent coupler evanescently coupling the first and second optical
6 paths; and
7 a first reflector included in the evanescent coupler and integrated in
8 the first and second optical paths such that the optical beam directed
9 through the first optical path is reflected from the first reflector as the
10 optical beam is concurrently evanescently coupled from the first to the
11 second optical path.

1 2. The apparatus of claim 1 wherein the first reflector is defined at
2 a plane of symmetry in a center of the evanescent coupler.

1 3. The apparatus of claim 1 wherein the first reflector is at a first
2 end of the first optical path, the apparatus further comprising:
3 a second reflector at a second end of the optical path; and
4 a laser cavity including a gain medium defined between first and
5 second reflectors.

1 4. The apparatus of claim 3 wherein the optical beam output from
2 the output of the evanescent coupler has output spectrum that is similar to
3 an intra-cavity spectrum of the optical beam directed through the laser
4 cavity.

1 5. The apparatus of claim 3 wherein the first and second optical
2 paths and the first reflector are disposed in semiconductor material.

1 6. The apparatus of claim 5 wherein the gain medium is disposed
2 in the semiconductor material.

1 7. The apparatus of claim 5 wherein the laser cavity comprises a
2 first optical waveguide disposed in the semiconductor material and the
3 second optical path is included in a second optical waveguide disposed in
4 the semiconductor material.

1 8. The apparatus of claim 7 further comprising a photonic device
2 monolithically integrated in the semiconductor substrate and optically
3 coupled to receive the optical beam from the second optical waveguide.

1 9. The apparatus of claim 3 wherein the first and second optical
2 paths include optical fibers.

1 10. The apparatus of claim 5 wherein the semiconductor material
2 comprises silicon.

1 11. The apparatus of claim 1 wherein the first reflector comprises a
2 Bragg grating included in the evanescent coupler and integrated in the first
3 and second optical paths.

1 12. A method comprising:
2 directing an optical beam along a first optical path;
3 reflecting the optical beam with a first reflector disposed in the first
4 optical path; and
5 evanescently coupling the optical beam in conjunction with reflecting
6 the optical beam from the first optical path into a second optical path, the
7 first reflector integrated with an evanescent coupler including the first and
8 second optical paths.

1 13. The method of claim 12 wherein reflecting the optical beam
2 comprises reflecting the optical beam with the first reflector at a plane of
3 symmetry in a center of the evanescent coupler.

1 14. The method of claim 12 further comprising:

2 stimulating emission of the optical beam from a gain medium
3 included in the first optical path; and
4 reflecting the optical beam between first and second reflectors in a
5 laser cavity defined between first and second reflectors so as to further
6 stimulate emission of the optical beam in the laser cavity.

1 15. The method of claim 14 wherein the first reflector comprises a
2 Bragg grating having a Bragg wavelength, wherein a center wavelength of
3 the optical beam that is reflected between the first and second reflectors is
4 substantially equal to the Bragg wavelength of the Bragg grating.

1 16. The method of claim 14 wherein evanescently coupling the
2 optical beam in conjunction with reflecting the optical beam from the first
3 optical path into the second optical path comprises directing the optical
4 beam out from the laser cavity into an optical output of the evanescent
5 coupler.

1 17. The method of claim 16 further comprising directing the optical
2 beam reflected from the first reflector from the output of the evanescent
3 coupler to an optical device disposed in semiconductor material, wherein
4 the evanescent coupler including the first and second optical paths and the
5 first reflector are also disposed in the semiconductor material.

1 18. A system, comprising:

2 a laser having a laser cavity including a gain medium defined between
3 first and second reflectors and an evanescent output coupler optically
4 coupled to the laser cavity, the evanescent output coupler including the first
5 reflector integrated with the laser cavity and an output of the evanescent
6 coupler such that an optical beam in the laser cavity is reflected from the
7 first reflector as the optical beam is concurrently evanescently coupled to
8 the output of the evanescent coupler; and
9 an optical receiver optically coupled to receive the optical beam from
10 the output of the evanescent coupler.

1 19. The system of claim 18 wherein the first reflector comprises a
2 Bragg grating.

1 20. The system of claim 18 wherein the first reflector is defined at a
2 plane of symmetry in a center of the evanescent coupler.

1 21. The system of claim 18 wherein the evanescent coupler
2 including the first reflector are disposed in semiconductor material.

1 22. The system of claim 21 further comprising an optical device
2 optically coupled between the output of the evanescent coupler and the
3 optical receiver.

1 23. The system of claim 22 wherein the optical device is disposed in
2 the semiconductor material.

1 24. The system of claim 21 wherein the optical device comprises an
2 optical modulator adapted to modulate the optical beam in response to a
3 signal.

1 25. The system of claim 18 wherein the laser comprises a external
2 cavity laser (ECL).

1 26. The system of claim 21 wherein the semiconductor material
2 comprises silicon.